

REMARKS/ARGUMENTS:

Claims 1, 2, 4, 5, 9, 10, 12, and 14 are amended. Support for the amendments to the claims can be found at pp. 21-22, paragraph [0054] and pp. 32-33, paragraph [0086] of Applicant's specification. Claims 1-22 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The present invention relates to a process for forming a metal plating film used as conductive patterns for electronic components, such as capacitors, inductors, filters, and wiring boards, to a process for manufacturing an electronic component constituted by combination of the metal plating film and a dielectric layer, and to an apparatus for forming the plating film used for formation of the metal plating film. (Applicant's specification, at p. 1, paragraph [0001]).

CLAIM OBJECTIONS:

Claim 5 is objected to because of the following informalities: the claim recites a "dielectric 10", however, it appears that the 10 is a typo.

In response, Applicant corrected this typographical error by deleting "10". Withdrawal of this objection is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102:

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yamashita et al. (U.S. Patent No. 4,053,370).

Claim 5 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Uriu et al. (U.S. Patent No. 5,647,966).

Applicant respectfully traverses the above rejections as to amended claims 1, 2, and 5. Independent claims 1 and 5, as amended, require "transferring the metal

plating film from the base element to a transfer recipient material by pressurizing the transfer recipient material to the convex curved surface of the base element" and "detaching and attaching the metal plating film comprises detaching the metal plating film from the base element to a transfer recipient material or the dielectric sheet by pressurizing a transfer recipient material or the dielectric sheet to the convex curved surface of the base element," respectively.

Applicant respectfully submits that neither Yamashita nor Uriu can anticipate or render claims 1 and 5 obvious, because neither reference teaches or suggests the above limitations.

It is an aspect of the present invention that the metal plating film 8 is formed so as to have a sectional configuration with a convex curve on the surface of the base element 9 with a circular shape. Therefore, in deposition of the metal plating film 8 to the resin film 20, when the obtained metal plating film 8 is detached from the base element 9 and deposited on the resin film 20, the metal plating film 8 having a shape of a convex curve transfigures toward planarization on the resin film 20, even if an internal stress (tensile stress) arises in the metal plating film 8. And thereby, the metal plating film 8 may be formed on the flat resin film 20 in a planar state without distortion. (Applicant's specification, at p. 33, paragraph [0087]).

It is another aspect of the present invention that if after the metal plating film 8 is once transferred onto the resin film 20, the ceramic green sheet 26 is attached in layers from upper side, the ceramic green sheet 26 will not have direct contact to a mask layer 7 on a surface of the base element formed with a harder material. And therefore excellent attach of the ceramic green sheet 26 on the metal plating film 8 may be attained without damage caused by contact with the mask

layer 7 of the ceramic green sheet 26. (Applicant's specification, at pp. 35-36, paragraph [0096]).

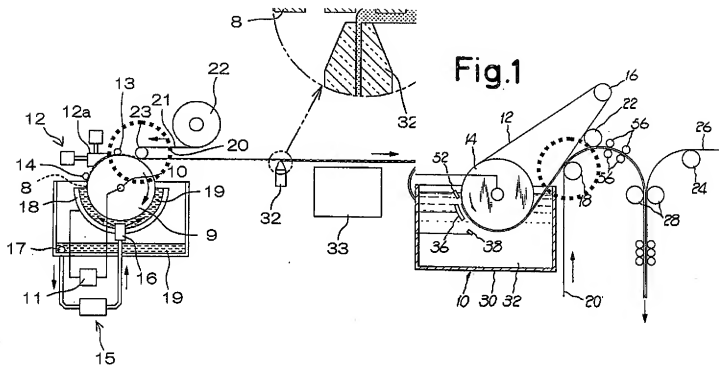
Moreover, since the metal plating film 8 is transfigured toward planarization as mentioned above when it is detached from the base element 9, even if a principal surface of the ceramic green sheet 26 is transferred to this metal plating film 8, occurrence of deformation or crack in the ceramic green sheet 26 or the metal plating film 8 may effectively be prevented. Therefore, the present invention can contribute to productivity drive of the multilayer capacitor 1. (Applicant's specification, at p 36, paragraph [0097]).

The methods described in Yamashita and Uriu do not teach or suggest the transferring step discussed above and therefore, do not provide the advantages of the present invention.

As shown in the figures below, in the present invention, the transfer recipient material (20 or 26) is pressurized to the convex curved surface of the base element (9). While, in Yamashita, the adhesive-coated strip (20) is not pressurized to the roll (14).

Present invention  
(with fragmented circle added)

Yamashita  
(with fragmented circle added)



In light of the foregoing, Applicant respectfully submits that neither Yamashita nor Uriu can anticipate or render claims 1 and 5 obvious, because the cited references fail to teach or suggest each and every claim limitation. Claim 2 depends from claim 1 and cannot be anticipated or rendered obvious for at least the same reasons as claim 1. Withdrawal of these rejections is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103:

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamashita in view of Andricacos et al. (U.S. Patent No. 5,789,320).

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamashita in view of Ostwald et al. (U.S. Patent No. 4,975,160).

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Uriu in view of Nakao et al. (U.S. Patent No. 6,485,591).

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Uriu in view of Chen et al. (U.S. Patent Application Publication No. 2001/0009724).

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Uriu in view of either Yamashita or Helms et al. (U.S. Patent No. 3,414,487).

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Uriu in view of Andricacos.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Uriu in view of Ostwald.

Applicant respectfully traverses the above rejections. Claims 3, 4, 9, 10, and 12-14 depend from either claim 1 or claim 5; and are therefore, patentable over Yamashita or Uriu for at least the same reasons discussed above. Andricacos, Ostwald, Nakao, Chen, and Helms cannot remedy the defect of Yamashita or Uriu and are not relied upon by the Office for such. Instead, the Office cites Andricacos for teaching the use of a diamond-like carbon mask for plating applications, and that DLC is an insulating material whose corrosion resistance allows it to withstand strongly alkaline plating solutions; Ostwald for teaching incorporating ceramic particles in the metalization layer in order to improve the adhesion of the metal layer to the substrate; Nakao for teaching applying a ceramic slurry 35, i.e., dielectric slurry, to form a ceramic greenware sheet (Fig. 28); Chen for teaching

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metal coatings are typically annealed at elevated temperature to relieve stress in the coating; and Helms for teaching a method of manufacturing printed circuits comprising the step of electroplating a circuit pattern on the surface of a cylindrical drum.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claims 3, 4, 9, 10, and 12-14 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of these rejections is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4600 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,  
HOGAN & HARTSON L.L.P.

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